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(54) Title: MODIFIED HEMOGLOBIN AND METHODS OF MAKING SAME

(57) **Abstract:** The present invention provides a hemoglobin molecule (Hb) having six  $\pm$  one PEG chains, wherein two of said PEG chains are bound to Cys-93 (B) of Hb, and the remaining PEG chains are bound to thiol groups introduced on  $\epsilon$ -NH<sub>2</sub> of Hb. The present invention also provides a process for preparing a modified hemoglobin molecule (Hb), comprising the steps of: (a) reacting Hb with 8-15 fold excess of iminothiolane to form thiolated Hb; and (b) reacting the thiolated Hb with 16-30 fold excess of PEG functionalized with a maleimide moiety, to form the modified Hb.

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